Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

1
C 42 C
cop. 4

LIBRARY
RECEIVED
JUN 7 - 1945
U. S. DEPT. OF AGRICULTURE

Issued March 14, 1908.

United States Department of Agriculture,

BUREAU OF CHEMISTRY—Circular No. 38.

H. W. WILEY, Chief of Bureau.

EXTRACTS FROM THE PROCEEDINGS OF THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS, 1907.

[An advance circular giving the recommendations of referees as adopted, appointments, and motions affecting the work of 1908.]

REPORTS OF COMMITTEES ON RECOMMENDATIONS OF REFEREES.

COMMITTEE A. R. J. DAVIDSON, CHAIRMAN.

(Phosphoric acid, potash, nitrogen, soils, ash, and insecticides.)

I. NITROGEN.

It is recommended—

(1) That "20 cc of sulphuric acid," line 3, under (3) Determination, page 6, Bulletin 107, on Methods of Analysis, be changed to read "from 20 to 30 cc of sulphuric acid."

Adopted.

(2) That in line 4, same reference, the following phrase be inserted after the word "acid:" "from 0.1 to 0.3 gram of crystallized copper sulphate may also be used in addition to the mercury or in lieu of it."

Referred to the referee for 1908 with a recommendation for adoption.

(3) That following the sixth line from the bottom of page 6, same reference, after the words "standard acid," this sentence be added: "During at least the first ten minutes of distillation the lower end of the condenser tube should dip beneath the surface of the standard acid."

The motion to adopt this recommendation was lost.

(4) That on page 7 of Bulletin 107, under "(b) Gunning method, (3) Determination," line 4, after the words "sulphuric acid" the following phrase be inserted: "from 0.1 to 0.3 gram of crystallized copper sulphate may also be added."

Referred to the referee for final action as to adoption in 1908.

(5) That on page 7, of Bulletin 107, after insert recommended under (4), add the following:

> Approximately 0.7 gram of mercuric oxid or its equivalent in metallic mercury may also be added, before the addition of the potassium sulphate, but if mercury be used potassium sulphid must be employed, as in the Kjeldahl method, in the distillation.

This recommendation was referred to the committee on the revision of methods to be inserted as a special method instead of being introduced as the referee recommended.

II. POTASH.

It is recommended—

(1) That since the volumetric method for potash, especially in soils, saves much time, the study of this method for use in soil and fertilizer analysis be continued; and further that the recommendation made by Mr. Cushman in 1906, to the effect that the referee "turn his attention to a definition of available potash," be made the basis for work the coming year.

Adopted.

III. PHOSPHORIC ACID.

It is recommended—

(1) That Thomas or basic slag be prepared for analysis as are other fertilizers or fertilizing materials under the methods of this association.

Adopted provisionally pending further work.

(2) That the solution for analysis be made according to (a_7), page 2, Bulletin 107, under "(2) Total phosphoric acid," or in strong hydrochloric acid alone. In the latter case, after the portion for analysis is measured out, add nitric acid and heat for a few minutes. Then determine total phosphoric acid according to the official methods.

Adopted provisionally pending further work.

(3) That the fineness of the material be determined according to the plan followed with bone meal and the commercial value estimated on the basis of total phosphoric acid and fineness of product.

Adopted provisionally pending further work.

(4) That the referee further study the subject of basic slag with a view to devising some method for the determination of the available phosphoric acid which it contains.

This recommendation was made by Committee A and was adopted.

IV. INORGANIC PLANT CONSTITUENTS.

It is recommended—

(1) That the peroxid method remain provisional [not adopted as official as recommended by the referee].

Adopted.

(2) That the combustion method be adopted as provisional.

Adopted.

(3) That the method for ash, as given in Bulletin 46, page 77, be readopted as official.

Adopted.

(4) That the development of methods for determining iron and aluminum in ash be referred to the referee for 1908.

Adopted.

V. SOILS.

It is recommended—

(1) That the modified J. L. Smith method for total potassium be further tested. (Circular 32, p. 4.)

Adopted.

(2) That the sodium peroxid fusion method for total phosphorus be adopted as a provisional method of this association and be further tested. (Bul. 99, p. 111; Bul. 105, p. 145.)

Adopted.

(3) That the determination of volatile matter (page 14, Bulletin 107, section 4) be replaced by the "Determination of Total Organic Carbon" (J. Amer. Chem. Soc., 1904, *26*: 1640).

In lieu of this it was recommended by Committee A that the method suggested for the determination of total organic carbon be referred to the committee on revision of methods for insertion as an additional determination, the original method to be also retained.

The recommendation of Committee A was adopted.

VI. Insecticides.

It is recommended—

(1) That the Haywood-Davidson provisional method for determining total arsenic oxid in London purple be given a further trial, and that this be compared with the original provisional method. (Bul. 107, pp. 28, 29; also Circular 10.)

Adopted.

(2) That a further study of the amount of hydrochloric acid used in the reduction of London purple be made in order to determine whether 25 cc can be used instead of 50 cc.

Adopted.

(3) That the provisional precipitation method for the analysis of soda lye be made official. (Bul. 107, p. 31; also Circular 10.)

Referred to the referee for 1908 for final recommendation.

(4) That the provisional potassium acid sulphate method for the analysis of soda lye be dropped from the methods of the association.

Adopted.

(5) That the provisional hydrogen peroxid method for the determination of formaldehyde be made official. (Bul. 107, p. 33.)

Referred to the referee for 1908 for final recommendation.

(6) That the cyanid method for the determination of formaldehyde be further studied in order to determine more definitely what strength of formaldehyde may be estimated by this method. (Bul. 107, p. 33.)

Adopted.

(7) That the provisional hydrogen peroxid method for the determination of sulphur in sulphur dips be made official. (Bul. 107, p. 34.)

Referred to the referee for 1908 for final recommendation.

(8) That the methods proposed by J. K. Haywood for the analysis of lead arsenate (Proceedings 1906, Bul. 105, p. 165) be made provisional, and further studied with a view to their adoption by the association.

Adopted.

COMMITTEE B. B. B. ROSS, CHAIRMAN.

(Dairy products, foods and feeding stuffs, sugar, tannin, and medicinal plants and drugs.)

I. Sugar.

It is recommended—

(1) That in the determination of reducing sugars the use of lead subacetate as a clarifying agent be discontinued and that only those agents, such as normal lead acetate, be employed which do not precipitate reducing sugars.

Adopted.

(2) That the use of potassium oxalate for precipitating the excess of lead from sugar solutions before polarizing or determining reducing sugars be adopted provisionally.

Adopted.

(3) That the zinc oxid method for the determination of ash in molasses be dropped from the official methods. (Bul. 107, p. 68, Method II.)

Adopted.

(4) That the method and tables of Munson and Walker for the unification of reducing sugar methods be adopted provisionally by the association. (J. Amer. Chem. Soc., 1906, *28* : 663; 1907, *29* : 541.)

Adopted.

(5) That Low's volumetric method for the estimation of reduced copper (Bul. 99, p. 19) be made a provisional method of the association.

Adopted.

(6) That the question of the influence of normal lead acetate, of wet and dry lead subacetate, and of hydrosulphite upon the polarization of sugars be further investigated.

Adopted.

(7) That the analysis of commercial dextrins be further investigated by next year's referee on special analytical methods.

Adopted.

II. FOODS AND FEEDING STUFFS.

It is recommended—

(1) That the method for methyl pentosans be further studied next year, especial attention being given to obtaining as much cooperative work as possible.

Adopted.

(2) That the table for calculating methyl-furfural-phloroglucid to fukose, fukosans, rhamnose, rhamnosans, and methyl-pentosans (average of fukosan and rhamnosan), given in an article by Mayer and Tollens (J. Landw., 1907, *55* (3) : 269), be used in calculating the results of analysis; the average figure for methyl pentosans being taken when it is not known whether the mother product is fukosan or rhamnosan.

Adopted provisionally.

(3) That the last sentence under "Crude Fat or Ether Extract," "(b) (1) Direct Method," Bulletin 107, Methods of Analysis, page 39, which now reads as follows: "Dry the extract at the temperature of boiling water until it ceases to lose weight," be changed to read: "Dry the extract at the temperature of boiling water for one-half hour, remove from the oven to a desiccator, cool and weigh; continue this alternate drying and weighing at half-hour intervals until a minimum weight of fat is obtained. For most feeds a period of from one to one and one-half hours is required to obtain a minimum weight."

Adopted. [This is an elaboration of an official method and was adopted as a recommendation of the chairman of the committee on revision of methods, ordinarily two years being necessary for such action.]

III. DAIRY PRODUCTS.

It is recommended—

(1) That the study of methods of analysis of condensed milk be continued and that special attention be given to the following methods for determining the fat and sugar content of condensed milk:

(*a*) Double extraction method for the determination of fat as described in the proceedings of the association for 1906.[a]

(*b*) Roese-Gottlieb method for the determination of fat as described in the proceedings of the association for 1906.[a]

(*c*) Walker method for the determination of sugar. (J. Amer. Chem. Soc., 1907, *29*: 541.

(*d*) Allihn method for the gravimetric determination of sugar.

(*e*) Polariscopic method in comparison with the gravimetric method for the determination of sugar.

Adopted.

IV. TANNIN.

It is recommended—

(1) That work be continued with a view to finding a cheap strong filter paper as a substitute for S and S 590.

(2) That the method of filtering soluble solids suggested by Reed be given further trial. (J. Amer. Leather Chemists Assn., *2*: 420.)

(3) That the referee take up the study of methods for the analysis of leather, as such methods are greatly needed.

Recommendations adopted.

---

[a] U. S. Dept. Agr., Bureau of Chemistry Bul. No. 105, p. 105.

V. Medicinal Plants and Drugs.

It is recommended—

(1) That the present provisional method for assaying opium be made official. (Bul. 107, p. 201.)

Referred to referee for recommendation as to final action in 1908.

(2) That the methods included in the referee's report be made provisional.

Adopted.

(3) That the work be continued and that associate referees be appointed on the folowing subjects:

(*a*) Analytical methods for crude products.
(*b*) Methods for detecting and estimating alkaloidal matter in mixtures.
(*c*) Macroscopical and microscopical methods.
(*d*) Microchemical methods.
(*e*) Methods for headache mixtures.
(*f*) Methods for determining alcohol in the presence of other volatile bodies.
(*g*) Methods for testing volatile oils.

After some discussion this motion was put to a vote and was lost, it being deemed inadvisable to create associate referees for such divisions of the subject at this time and the referee was instructed to conduct the investigations specified informally, assigning the several lines of work to such chemists as volunteered for cooperative work.

[The methods on drug analysis provisionally adopted under (2) are appended.]

DETERMINATION OF ALKALOID.

Total extraction method.

Into a 200 cc flask weigh 10 grams of the powdered drug, add about 75 cc of ether-chloroform mixture (5 to 1 by volume), rotate and add 5 cc of a mixture of 40 cc of strong ammonia water with 60 cc of alcohol, cork, shake well and often during one hour, and let stand over night. Transfer as much of the mixture as possible to a small percolator, the neck of which is provided with a purified cotton plug, receiving the percolate in a beaker or flask. Rinse the residue in the flask into the percolator with additional portions of the ether-chloroform mixture, packing it down moderately with a glass rod, and continue the percolation with the same mixture until the percolate does not give an alkaloidal reaction, or at most only an opalescence when 2 cc are evaporated, and the residue is treated with N/10 hydrochloric acid, the mixture filtered and the filtrate tested with Mayer's solution. Evaporate or distil the percolate to about 10 cc at a temperature not exceeding 70° C. Transfer to a separator, and rinse the vessel with two portions of 20 cc each of ether, alternating with two portions of 10 cc each of 2 per cent sulphuric acid. Shake out, making sure that the reaction is acid, and repeat the operation three times with 15 cc of the same strength of acid, filtering the acid solutions into another separator through a 7 cm filter, and rinsing the latter with a few cubic centimeters of water. Wash the acid solution with 10 cc of ether-chloroform mixture (1 to 3 by volume), discarding the latter, and if colored repeat until no more color is acquired. Make the solution alkaline with ammonia water and shake out with four successive portions of about 20 cc each of ether-chloroform mixture (1 to 3); collect the latter in a separator, wash with 5 cc of water, transfer the ether-chloroform mixture to a tared flask or beaker, rinsing the separator with a small portion of ether-chloroform, and evaporate the solvent at a temperature not exceeding 70° C.

(*a*) *Gravimetric.* Add 3 cc of ether, evaporate and dry to constant weight at a temperature not exceeding 70° C. Report weight of alkaloidal residue.

(*b*) *Volumetric.* Dissolve the residue in about 10 cc of neutral alcohol, add 25 cc of water, 3 to 15 drops of cochineal indicator solution, measure in from a burette a slight excess of N/50 sulphuric acid, mix intimately, and titrate back with N/50 potassium hydroxid. Report net amount of N/50 acid required.

ALIQUOT METHOD.

Into a 200 cc flask weigh 15 grams of the powdered drug, add 150 cc of ether-chloroform mixture (5 to 1 by volume), cork and shake often for several minutes. Add 10 cc of ammonia water (10 per cent), shake frequently during one hour, and let stand over night. Add 15 cc of water, or sufficient to agglomerate the drug, shake, let settle a few minutes, and then decant 75 cc of the clear solution into a graduated cylinder. Transfer the solution to a separator, rinsing the cylinder with a few cubic centimeters of ether-chloroform, and shake out with 20 cc (or sufficient to render acid) of 2 per cent sulphuric acid, repeating the operation three times with 15 cc of the same strength acid, and collect the acid solutions in another separator. Wash the acid solution with 10 cc of ether-chloroform mixture (1 to 3 by volume), discarding the latter, and, if colored, repeat until no more color is acquired. Make the solution alkaline with ammonia water, and shake out with four successive portions of about 20 cc each of ether-chloroform mixture (1 to 3); collect the latter in a separator, wash with 5 cc of water, transfer the ether-chloroform mixture to a tared flask or beaker, rinsing the separator with a small portion of ether-chloroform, and evaporate the solvent at a temperature not exceeding 70° C.

(*a*) *Gravimetric.* Add 3 cc of ether, evaporate and dry to constant weight at a temperature not exceeding 70° C. Report weight of alkaloidal residue.

(*b*) *Volumetric.* Dissolve the residue in about 10 cc of neutral alcohol, add 25 cc of water, 5 to 15 drops of cochineal indicator solution, measure in from a burette a slight excess of N/50 sulphuric acid, mix intimately and titrate back with N/50 potassium hydroxid. Report net amount of N/50 acid required.

Whenever iodeosin indicator is used, follow the directions of the U. S. Pharmacopœia VIII, page 542. Solutions standardized by means of cochineal should not be used with iodeosin without running a blank for comparison, as the indicators do not give the same neutral point.

[These methods and those referred to in the U. S. Pharmacopœia are applied to the analysis of the following drugs with the modifications noted]:

ACONITE ROOT.

Method I.

U. S. Pharmacopœia VIII, p. 28. Report the amount of N/10 acid required.

Method II.

Aliquot gravimetric. Use *ether* instead of ether-chloroform mixture in the final shaking out.

BELLADONNA LEAVES.

Method I.

U. S. Pharmacopœia VIII, p. 67. Report indicator used and amount of N/10 acid required.

Method II.

Aliquot volumetric.

BELLADONNA ROOT.

Method I.

U. S. Pharmacopœia VIII, p. 68. Report indicator used and amount of N/10 acid required.

Method II.

Aliquot volumetric.

CINCHONA BARK.

Method I.

U. S. Pharmacopœia VIII, p. 102. Report total and ether-soluble alkaloids.

Method II.

Total extraction, gravimetric.

COCA LEAVES.

Method I.

U. S. Pharmacopœia VIII, p. 106. Report indicator used and amount of N/10 acid required.

Method II.

Aliquot gravimetric. Use *ether* instead of ether-chloroform mixture throughout.

COLCHICUM CORM.

Method I.

U. S. Pharmacopœia VIII, p. 111. Report weight of alkaloidal residue.

Method II.

Exhaust 10 grams of the powdered drug by percolation with alcohol, add 25 cc of water to the solution and evaporate. Digest and stir the residue for several minutes with 25 cc of petroleum ether and transfer the liquid to a beaker, rinsing the residue with a little fresh petroleum ether. Add to the beaker 20 cc of water and evaporate the petroleum ether. Gently warm the first residue with 10 cc of water, cool, and filter the solution through a small filter into a separator, rinsing the vessel and filter with several small portions of water, and finally with the water in the beaker. Shake out the liquid with four portions of 10 cc each of chloroform and evaporate the latter in a tared dish. Add 3 cc of alcohol and evaporate, repeat the operation and dry the residue to constant weight at a temperature not exceeding 70° C. Report weight of alkaloidal residue.

COLCHICUM SEED.

Method I.

U. S. Pharmacopœia VIII, p. 112. Report weight of alkaloidal residue.

Method II.

See Colchicum Corm. Method II.

COMMITTEE C. L. M. TOLMAN, CHAIRMAN.

(Food Adulteration.)

I. MEAT PROTEIDS.

(1) That the modified tannin-salt method for the separation of proteoses and peptones from the simpler amido bodies be adopted as a provisional method.

The method reads as follows:

Employ 50 cc of the filtrate from the determination of the coagulable proteids, transfer to a 100 cc graduated flask, add 15 grams of sodium chlorid, 10 cc of cold water, shake well and place in the cold at 12° C. (an ice box is a convenient place). Prepare and filter a 24 per cent solution of pure tannin, and keep at the same temperature, 12° C., with a flask of distilled water. After the temperature of the contents of the flask has reached 12° C., add 30 cc of the tannin solution, and fill to the mark with cold water, shake, and let stand at 12° C. for 12 hours (over night). Filter off 50 cc at 12° C. and determine the nitrogen therein as follows:

Transfer 50 cc of the tannin-salt filtrate to a Kjeldahl digestion flask and add a few drops of sulphuric acid. Place the flask in the steam bath, connect with the vacuum, and evaporate to dryness. In the digestion process about 30 cc of sulphuric acid are added but no potassium sulphate. The remainder of the process is carried out in the usual manner.

A blank must be run simultaneously. The nitrogen in 50 cc of the filtrate minus the nitrogen in the 50 cc of the blank filtrate multiplied by 2 gives amido nitrogen. The nitrogen of the proteoses and peptones is determined by difference.

The committee recommended that this method be further studied for another year before its adoption and this motion was passed.

(2) That the following method for the determination of the acidity of meat products be adopted as a provisional method:

Determine the acidity by titrating a dilute solution of the meat, or meat preparation, with N/10 alkali, using phenolphthalein as indicator. But if the color prevents the use of this indicator, use litmus paper, with the understanding that the results are lower than when phenolphthalein is employed.

Adopted.

(3) That inasmuch as the best modification of the Folin colorimetric method for the determination of kreatin and kreatinin in meat products has not been determined this point be studied another year.

Adopted.

(4) That the referee for 1908 investigate methods for the estimation of organic phosphorus and of xanthin bases.

Adopted.

II. FLAVORING EXTRACTS.

It is recommended—

(1) That methods for the detection of caramel and other coloring matter in vanilla extracts be studied.

Adopted.

(2) That the quantity and quality of soluble matter in vanilla beans obtained in the preparation of standard vanilla extract be determined by the referee in 1908.

Adopted.

III. DETERMINATION OF MOISTURE IN FOODS.

It is recommended that the work on this subject be continued another year.

Adopted.

IV. COLORS.

It is recommended that further work be done looking to a more comprehensive examination of the so-called "vegetable colors," some of which would seem to be no more properly classed as vegetable colors than are the anilin dyes.

Adopted.

V. VEGETABLE PROTEIDS.

It is recommended that special attention be given to the study of methods for the determination of proteid and nonproteid nitrogen.

Adopted.

VI. COCOA AND COCOA PRODUCTS.

It is recommended that the methods submitted by the referee be adopted as provisional until a fuller report on the subject can be made, except that for section 13 on Sugar the method proposed by Dubois for the determination of sugar in chocolate be substituted.

[These methods are the same, with a few modifications, as those appearing in the report of the Connecticut Agricultural Experiment Station for 1902–3. Dubois's method for the estimation of lactose and butter fat in milk chocolate is found in the J. Amer. Chem. Soc., 1907, *29*: 556.]

Adopted.

REPORTS OF COMMITTEES.

Certain important recommendations made by Mr. Street in his presidential address were referred to the committees on resolutions and amendments to the constitution, and the reports of these committees are given together with the action taken by the association, inasmuch as several of the recommendations vitally affect the conduct of the work.

COMMITTEE ON RESOLUTIONS.

L. L. Van Slyke, Chairman.

Your committee submits the following report and recommends the adoption of the resolutions presented:

Within the past few weeks, Dr. Geo. C. Caldwell, of Cornell University, and Dr. W. O. Atwater, of Wesleyan University, have been removed by death. Both of these men were pioneers in agricultural chemical teaching and investigations in America, and as such have exerted a deep, abiding influence upon the progress of agricultural chemistry not only by their personal work but widely through the many who as students have received inspiration from personal contact with these men.

Doctor Caldwell was an active member of our association as long as his health permitted, serving in the presidency one term and several times acting as referee. While Doctor Atwater was not directly active in our work, he was always in full sympathy with it. Many of us feel a distinct sense of personal loss in their death.

Resolved, That the association express its sorrow at their removal from earthly activities and its profound appreciation of the fundamental work which they performed as pioneers in agricultural chemistry.

Resolved, That the secretary be requested to prepare for insertion in the proceedings appropriate minutes regarding the work of Doctor Caldwell and Doctor Atwater.

[Carried by a rising vote.]

Whereas, it is the belief of this association that great good may be accomplished for the unification and improvement both of analytical methods and of definitions of standards for the foods and drugs that enter into international commerce, by an international conference of chemists and others connected with food and drug control and with the administration of laws relating thereto.

Wherefore, be it resolved, That this association favors such an international conference and requests the proper officials of the United States Government to take the initiative therein.

[Carried.]

Resolved, That we recommend the adoption of changes suggested by President Street in his address, as follows:

(1) That one day of our convention be devoted entirely to the reading of papers and their discussion, and that for this purpose the convention be divided into three sections covering the same subjects as our present committees on recommendations, and that all papers to be read in these sectional meetings be referred to the proper committee with full power to reject the same or assign places to them in the program sent to all members prior to the convention.

[Carried.]

REPORT OF THE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION.

Wm. Frear, Chairman.

(1) Your committee respectfully recommends that Article IV of the constitution shall be amended by the insertion in the second line, after the word "meeting," of the clause "from among the members of the association."

[This recommendation was adopted and in accordance with the suggested change Article IV of the constitution reads as follows:

There shall be appointed by the executive committee at the regular annual meeting, *from among the members of the association*, a referee and such associate referees for each of the subjects to be considered by the association as that committee may deem appropriate.]

(2) With respect to the suggested change in the tenure of office and organization of the committees on recommendations, your committee believes that, for the present, the matter could be better disposed of by the adoption of a resolution than by the insertion of a new article in the constitution.

It recommends for the attainment of the chief purposes of the proposed changes, the adoption of the following resolution with its preamble:

Whereas, It is desirable to secure the greatest practicable uniformity in the form of expression and arrangement of the methods adopted by this association, and also to provide for the thorough consideration of the various changes in method and of new methods proposed,

Resolved, That, beginning with 1908, the committee on recommendations be composed of nine members, elected (*appointed by the President*) as follows: Three to serve for six years, three for four years, and three for two years; and that as their respective terms expire, the vacancies caused thereby be filled by the election (*appointment*) of qualified successors for the full term of six years.

Resolved further, That this committee shall organize from its membership three subcommittees, corresponding to the present committees A, B, and C, to whom all recommendations of new methods or of changes in methods, provisional or official, shall be submitted not later than three weeks prior to the date of the meeting of the association at which it is desired that the recommendations in question shall be considered, and said committee on recommendations shall report to the association, with its approval, disapproval, or suggestion of amendment, all recommendations submitted in due form for its consideration.

[The difficulty of electing such a committee by the association as a whole and insuring that the members be well chosen, and also the method of filling vacancies occurring during the year, were discussed at some length and a motion to amend this resolution to read "appointed by the President," instead of "elected," was passed. The original resolution as amended was then adopted.]

(3) With respect to the suggested expansion of the territorial extent of this association, your committee most cordially seconds the appreciation of good fellowship and of mutual scientific advantages gained by the attendance of our Canadian confrères in this and earlier years, and further is convinced that many advantages would result from the harmonizing of the official control methods and standards used by our North American neighbors and ourselves. The changes suggested are, however, far-reaching in their effects and may change the status of the association in ways not intended. It is believed that before action the subject should receive full consideration.

We therefore recommend that the following amendments to the constitution be brought to the notice of the association in the published announcement of the next annual meeting, for the action of that meeting:

In Article I, first sentence, substitute for the words "the United States" the words "North America."

In Article II, first sentence, second and third lines, insert the word "provincial" after the word "State;" also in the third line of this sentence insert after the word "body" the phrase "in North America."

[This recommendation was adopted, and the proposed amendment is placed on record for action at the 1908 meeting.]

COMMITTEE ON UNIFICATION OF TERMS FOR REPORTING ANALYTICAL RESULTS.

R. J. Davidson, Chairman.

This committee has endeavored for nearly three years to get an expression of opinion from the members of the association as to their views in regard to the nomenclature for reporting analyses of fertilizers, etc., but only comparatively few have responded. The committee decided at its last meeting that it would be best to make a report at once without waiting for further replies to the circulars of inquiry sent out to the members of the association. The recommendations of the committee are as follows:

1. That the nomenclature now in use for fertilizers, soils, ash, etc., be retained.

Adopted.

2. That the association vote upon the advisability of permitting the use of a dual system of nomenclature, when desirable, with a view to the ultimate adoption of the element system for reporting the analysis of fertilizers, soils, ash, etc.

After considerable discussion Mr. Davidson called attention to the fact that this motion merely called for a vote for the consideration of the subject and did not commit the association to the support of the dual system of nomenclature. The motion was put and the second recommendation carried.

It having been thus decided that a vote of the association be taken on the subject, Mr. Hopkins offered the following motion for the action of the association in lieu of the statement of the case as made in the recommendation of the committee:

It is moved, That the suggestion of the committee looking toward the ultimate adoption of the element system be approved, but that no State should discontinue the use of the terms now in vogue until such discontinuation is also approved by this association and that meanwhile the subject should be brought before the International Congress of Applied Chemistry in an effort to secure international agreement;

That this association appoint a committee to bring the matter of reporting results according to the element system before the next International Congress of Applied Chemistry with power to add to their numbers at their discretion.

After a long debate a rising vote was taken, only those chemists being engaged in official fertilizer control work having a right to vote according to Article II of the constitution, and the motion was carried by a vote of 23 to 14.

REPORT OF THE COMMITTEE ON THE REVISION OF METHODS.

J. K. Haywood, Chairman.

The following report was presented by Mr. L. M. Tolman, acting for the chairman.

In accordance with the recommendations made in the report of the committee on revision of methods in 1906, and the suggestions of the secretary of the association made at that time, the revised methods were printed as Bulletin No. 107 of the Bureau of Chemistry and forwarded to the members of the association for criticism about three weeks before the 1907 meeting. Copies of this bulletin were sent to the following lists: Officers and referees of the association; directors and chemists of State agricultural experiment stations; superior officers of State boards of health, and chiefs of laboratories in the Bureau of Chemistry, Department of Agriculture.

The following letter was sent with each copy:

September 12, 1907.

Dear Sir: Inclosed you will find a copy of the revised methods of analysis of the Association of Official Agricultural Chemists recommended last year by the committee on revision and provisionally adopted by the association. Final action upon these revised methods will be taken this year.

You are respectfully requested to look these methods over at once, especially those with which you are most familiar. If you have any criticism to make of the changes incorporated, or can point out any errors, please report same to J. K. Haywood, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C., chairman of revision committee, so that the letter will reach him before October 5, if possible, certainly not later than October 7. All criticisms will be considered by the committee at a meeting to be held in Washington on October 5 to 8, and recommendations made to the association at the Jamestown meeting on October 9 to 12, in regard to any further changes or additions, before the revised methods are officially adopted.

Respectfully,

H. W. Wiley,
Chief, Bureau of Chemistry,
Secretary, Association Official Agricultural Chemists.

Twenty-five chemists sent criticisms of the revised methods. These criticisms were carefully considered by this committee and, in the main, were adopted, the majority being simply corrections of obvious errors in spelling, punctuation, printing, etc. Some chemists suggested material changes in official methods, which were not adopted, as the committee did not feel that it had the power to make such far-reaching modifications. When changes were suggested to make the statement of the method more clear, but not to change the method itself, these were adopted.

The committee would respectfully recommend that the methods as now published in Bulletin 107 and further corrected, as indicated above, be adopted as the official and provisional methods of the Association of Official Agricultural Chemists.

[Signed]
J. K. Haywood, *Chairman.*
J. P. Street,
A. L. Winton,
F. P. Veitch,
L. M. Tolman,
J. H. Pettit,
F. W. Woll (absent).

Upon a motion being made to adopt the report, a discussion ensued as to the extent of the authority of the committee to change the methods by dropping obsolete procedures and otherwise bringing the methods up to date and the several sections into harmony with each other, especially when changes in official methods were involved.

The original motion was amended by a motion to continue the committee with authority to make such further changes of this nature as might be deemed necessary, said changes to be approved by the executive committee and inserted in the final revision. This motion was passed, and the original motion as amended was then carried, adopting the report of the committee and making the revision official.

OFFICERS, REFEREES, AND COMMITTEES OF THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS FOR THE YEAR 1908.

President.

Mr. Harry Snyder, St. Anthony Park, Minn.

Vice-President.

Mr. W. D. Bigelow, Washington, D. C.

Secretary.

Mr. H. W. Wiley, Washington, D. C.

Additional members of the Executive Committee.

Mr. B. B. Ross, Auburn, Ala.
Mr. G. S. Fraps, College Station, Tex.

Referees.

Phosphoric acid: J. M. McCandless, Atlanta, Ga.
Nitrogen:
  Determination of nitrogen: C. L. Penny, State College, Pa.
  Separation of nitrogenous bodies: L. L. Van Slyke, Geneva, N. Y. (milk and cheese proteids).
Potash: B. B. Ross, Auburn, Ala.
Soils: S. D. Averitt, Lexington, Ky.
Dairy products: J. M. Bartlett, Orono, Me.

Foods and feeding stuffs: J. P. Street, New Haven, Conn.
Food adulteration: H. E. Barnard, Indianapolis, Ind.
Sugar: A. H. Bryan, Washington, D. C.
Tannin: F. P. Veitch, Washington, D. C.
Insecticides: C. C. McDonnell, Washington, D. C.
Inorganic plant constituents: H. D. Haskins, Amherst, Mass.
Medicinal plants and drugs: L. F. Kebler, Washington, D. C.

Associate referees.

Phosphoric acid: W. F. Hand, Agricultural College, Miss.
Nitrogen:
  Determination of nitrogen: G. W. Cavanaugh, Ithaca, N. Y.
  Separation of nitrogenous bodies:
    Meat proteids: P. F. Trowbridge, Columbia, Mo.
    Vegetable proteids: E. B. Hart, Madison, Wis.
Potash: E. L. Baker, Geneva, N. Y.
Soils: J. G. Lipman, New Brunswick, N. J.
Dairy products: L. G. Michael, Ames, Iowa.
Foods and feeding stuffs: F. W. Morse, Durham, N. H.
Food adulterations:
  Colors: H. M. Loomis, Galveston, Tex.
  Saccharine products: Arthur Given, Washington, D. C.
  Fruit products: C. B. Cochran, West Chester, Pa.
  Wine: Julius Horvet, St. Paul, Minn.
  Beer: H. E. Barnard, Indianapolis, Ind.
  Distilled liquors: L. M. Tolman, Washington, D. C.
  Vinegar: Chas. H. Hickey, Boston, Mass.
  Flavoring extracts: E. M. Chace, Washington, D. C.
  Spices: A. L. Winton, Chicago, Ill.
  Baking powder and baking chemicals: E. L. Redfern, Lincoln, Nebr.
  Meat and fish: F. C. Weber, Washington, D. C.
  Fats and oils: H. E. Bishop, Indianapolis, Ind.
  Dairy products: Herman Lythgoe, Boston, Mass.
  Cereal products: E. F. Ladd, Fargo, N. Dak.
  Vegetables: W. L. Dubois, Buffalo, N. Y.
  Condiments other than spices: E. M. Bailey, New Haven, Conn.
  Cocoa and cocoa products: A. G. Woodman, Boston, Mass.
  Tea and coffee: A. G. Woodman, Boston, Mass.
  Preservatives: W. D. Bigelow, Washington, D. C.
  Determination of water in foods: E. W. Brown, Washington, D. C.
Sugar:
  Molasses methods: H. P. Agee, Audubon Park, La.
  Chemical methods: Fritz Zerban, Audubon Park, La.
Tannin: M. S. McDowell, State College, Pa.
Insecticides: Howard R. Watkins, Pullman, Wash.
Inorganic plant constituents: F. W. Robison, Lansing, Mich.

SPECIAL COMMITTEES.

Food Standards.

Mr. William Frear, State College, Pa., chairman.
Mr. H. W. Wiley, Washington, D. C.
Mr. H. A. Weber, Columbus, Ohio.
Mr. M. A. Scovell, Lexington, Ky.
Mr. E. H. Jenkins, New Haven, Conn.

Fertilizer Legislation.

Mr. H. W. Wiley, Washington, D. C., chairman.
Mr. B. W. Kilgore, Raleigh, N. C.
Mr. H. B. McDonnell, College Park, Md.
Mr. J. L. Hills, Burlington, Vt.
Mr. B. B. Ross, Auburn, Ala.

Testing Chemical Reagents.

Mr. L. F. Kebler, Washington, D. C., chairman.
Mr. A. L. Winton, Chicago, Ill.
Mr. B. W. Kilgore, Raleigh, N. C.

Revision of Methods.

Mr. J. K. Haywood, Washington, D. C., chairman.
Mr. F. P. Veitch, Washington, D. C.
Mr. L. M. Tolman, Washington, D. C.
Mr. J. P. Street, New Haven, Conn.
Mr. A. L. Winton, Chicago, Ill.
Mr. J. H. Pettit, Urbana, Ill.
Mr. F. W. Woll, Madison, Wis.

Committee to present the question of the unification of terms to the International Congress of Applied Chemistry.

Mr. R. J. Davidson, Blacksburg, Va., chairman.
Mr. C. G. Hopkins, Urbana, Ill.
Mr. W. D. Bigelow, Washington, D. C.
Mr. G. S. Fraps, College Station, Tex.
Mr. B. W. Kilgore, Raleigh, N. C.
Mr. H. J. Wheeler, Kingston, R. I.
Mr. J. T. Willard, Manhattan, Kans.

O